The following Listing of Claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) A drive method for a piezoelectric actuator comprising:

preparing [[a]] the piezoelectric actuator having an oscillator being configured to oscillate due to the supply of a drive signal with a specific frequency to a piezoelectric element, and contact sections being convexities being provided on opposite sides of the oscillator and being configured to contact a driven object;

detecting a first detection signal indicating an oscillating state of the oscillator and controlling a frequency of the drive signal sent to the piezoelectric element based on the first detection signal and the drive signal, or based on the first detection signal;

detecting the amplitude of the first detection signal;

comparing the amplitude and a standard amplitude value of the first detection signal; and

controlling the frequency of the drive signal based on the results of comparing the amplitude and the standard amplitude value of the first detection signal.

2. (Previously Presented) The drive method for a piezoelectric actuator according to claim 1, wherein controlling the frequency of the drive signal is controlling the increase or decrease in the frequency of the drive signal, or controlling the rate of change of the increase or decrease in the frequency of the drive signal.

3. (Previously Presented) The drive method for a piezoelectric actuator according to claim 2, wherein the frequency of the drive signal is increased or decreased based on the first detection signal and the drive signal or based on the first detection signal, and the rate of change of the increase or decrease in the frequency of the drive signal is controlled based on the results of comparing the amplitude and the standard amplitude value.

4. (Original) The drive method for a piezoelectric actuator according to claim 3, wherein the rate of change of the increase or decrease in the frequency of the drive signal is reduced when the amplitude and the standard amplitude value are compared and the amplitude is equal to or greater than the standard amplitude value, and the rate of change of the increase or decrease in the frequency of the drive signal is increased when the amplitude and the standard amplitude value are compared and the amplitude is less than the standard amplitude value.

5. (Previously Presented) The drive method for a piezoelectric actuator according to claim 1, further comprising

detecting the phase difference between a second detection signal outputted from the oscillator indicating the oscillating state of the oscillator and the drive signal, and controlling the frequency of a drive signal sent to the piezoelectric element based on the results of comparing the phase difference and a standard phase difference value,

detecting the amplitude of the second detection signal,

comparing the amplitude and the standard amplitude value of the second detection signal, and

controlling the frequency of the drive signal based on the results of comparing the amplitude and the standard amplitude value of the second detection signal.

6. (Currently Amended) The drive method for a piezoelectric actuator according to claim 1, further comprising

detecting a plurality of detection signals outputted from the oscillator indicating the oscillating state of the oscillator,

detecting the phase differences among the plurality of detection signals,

~~comparing~~ controlling the frequency of the drive signal sent to the piezoelectric element based on the results of comparing the phase differences and the standard phase differences value of the plurality of detection signals,

detecting the amplitude of at least one detection signal from among the plurality of detection signals,

comparing the amplitude and the standard amplitude value of the at least one detection signal, and

controlling the frequency of the drive signal based on the results of ~~this comparison~~ comparing the amplitude and the standard amplitude value of the first detection signal.

7. (Currently Amended) The drive method for a piezoelectric actuator according to claim 1, wherein

the oscillator oscillates in a first oscillation mode and a second oscillation mode due to the supply of [[a]] the drive signal with a specific frequency to a piezoelectric element, and

the detection signal is outputted from the oscillator indicating the oscillating state in the first oscillation mode and/or the second oscillation mode.

8. (Previously Presented) A piezoelectric actuator comprising:

a piezoelectric element having an oscillator and contact sections being convexities being arranged on opposite sides of the piezoelectric element, at least one of the contact sections being arranged to contact a driven object; and

a drive device being configured to supply a drive signal with a specific frequency to the piezoelectric element to oscillate the oscillator, the drive device having

a frequency control device being configured to control the frequency of the drive signal, and

an amplitude detection circuit being configured to detect the amplitude of a detection signal,

the frequency control device being configured to detect a detection signal indicating the oscillating state of the oscillator and to control the frequency of the drive signal based on the detection signal and the drive signal, or based on the detection signal,

the amplitude and a standard amplitude value are compared, and

the frequency of the drive signal is controlled based on the results of this comparison.

9. (Previously Presented) A piezoelectric actuator comprising:

a piezoelectric element having an oscillator; and

a drive device being configured to supply a drive signal with a specific frequency to the piezoelectric element to oscillate the oscillator, the drive device having

a frequency control device being configured to control the frequency of the drive signal, and

an amplitude detection circuit being configured to detect the amplitude of a detection signal,

the frequency control device including

a frequency increase/decrease control device controlling the increase or decrease in the frequency of the drive signal, and

a frequency increase/decrease rate control device controlling the rate of change of the increase or decrease in the frequency of the drive signal, either one of the frequency increase/decrease control device or frequency increase/decrease rate control device detecting a detection signal indicating the oscillating state of the oscillator and controlling the frequency of the drive signal on the basis of the detection signal and the drive signal, or on the basis of the detection signal, and

the other one of the frequency increase/decrease control device or frequency increase/decrease rate control device comparing the amplitude and

the standard amplitude value and controlling the frequency of the drive signal on the basis of the results of this comparison.

10. (Previously Presented) The piezoelectric actuator according to claim 9, wherein

the frequency increase/decrease control device increases or decreases the frequency of the drive signal on the basis of the detection signal and the drive signal, or on the basis of the detection signal, and

the frequency increase/decrease rate control device controls the rate of change of the increase or decrease in the frequency of the drive signal on the basis of the results of comparing the amplitude and the standard amplitude value.

11. (Currently Amended) The piezoelectric actuator according to claim 9, further comprising

a phase difference detection device detecting [[a]] the detection signal that indicates the oscillating state of the oscillator and detecting the phase difference between the detection signal and the drive signal or the phase difference between a plurality of detection signals, wherein

the frequency control device compares the phase difference detected by the phase difference detection device with a standard phase difference value and controls the frequency of the drive signal sent to the piezoelectric element on the basis of the results of this comparison, and also compares the amplitude and the standard amplitude value and controls the frequency of the drive signal on the basis of the results of this comparison.

12. (Previously Presented) The piezoelectric actuator according to claim 11, wherein the phase difference detection device is a phase difference/voltage conversion circuit that detects the phase difference and outputs a phase difference voltage signal whose voltage value corresponds to the phase difference.

13. (Previously Presented) A piezoelectric actuator comprising:

a piezoelectric element having an oscillator; and

a drive device being configured to supply a drive signal with a specific frequency to the piezoelectric element to oscillate the oscillator, the drive device having

a frequency control device being configured to control the frequency of the drive signal, and

an amplitude detection circuit being configured to detect the amplitude of a detection signal, and

the frequency control device being configured to detect a detection signal indicating the oscillating state of the oscillator and to control the frequency of the drive signal based on results of comparing the amplitude of the detection signal and a standard amplitude value,

the frequency control device including

a constant voltage circuit outputting a standard voltage for phase difference comparison and a standard voltage for amplitude detection,

a comparison circuit being configured to compare the standard voltage for phase difference comparison outputted by the constant voltage circuit with a phase difference voltage outputted from a phase difference/voltage conversion circuit, and to output a comparison result signal, and

a drive control section being configured to receive the comparison result signal outputted by the comparison circuit and to control the frequency of the drive signal sent to the piezoelectric element,

the amplitude detection circuit being configured to detect amplitude by comparing the standard voltage for amplitude detection outputted by the constant voltage circuit with the detection signal, and

the drive control section having functions to decrease the rate of change in frequency over a specific period of time when the amplitude detection voltage detected by the amplitude detection circuit is equal to or greater than the standard voltage for amplitude detection, and to increase the rate of change in frequency over a specific period of time when the amplitude detection voltage detected by the amplitude detection circuit is less than the standard voltage for amplitude detection.

14. (Currently Amended) The piezoelectric actuator according to claim 13, wherein the drive control section has a drive circuit to supply [[a]] <u>the</u> drive signal to the piezoelectric element, a voltage control oscillator to output a frequency corresponding to the voltage inputted to the drive circuit, and a voltage adjustment circuit to adjust the voltage supplied to the voltage control oscillator on the basis of the results of comparing the amplitude and the standard amplitude value.

15. (Previously Presented) The piezoelectric actuator according to claim 14, wherein the voltage adjustment circuit includes

a voltage adjustment section to adjust the voltage outputted to the voltage control oscillator,

a clock circuit configured to vary the frequency of an outputted clock signal, and

a control circuit to output a signal to the voltage adjustment section according to the clock signal outputted by the clock circuit, and to vary the frequency of the clock signal on the basis of the amplitude signal detected by the amplitude detection circuit.

16. (Previously Presented) The piezoelectric actuator according to claim 15, wherein the control circuit slows the clock signal outputted from the clock circuit when the amplitude signal is equal to or greater than the standard voltage for amplitude detection, and speeds up the clock signal outputted from the clock circuit when the amplitude signal is less than the standard voltage for amplitude detection.

17. (Previously Presented) The piezoelectric actuator according to claim 14, wherein the voltage adjustment circuit includes

a loop filter that has different time constants and that outputs a voltage to the voltage control oscillator according to each of the time constants, and

a control circuit to select a time constant from the loop filter on the basis of the amplitude signal detected by the amplitude detection circuit.

18. (Previously Presented) The piezoelectric actuator according to claim 17, wherein the control circuit decreases the amount of voltage outputted from the loop filter when the amplitude signal is equal to or greater than the standard voltage for amplitude detection, and increases the amount of voltage outputted from the loop filter when the amplitude signal is less than the standard voltage for amplitude detection.

19. (Previously Presented) An electronic timepiece comprising:

a piezoelectric actuator according to claim 9; and

a date display mechanism driven by the piezoelectric actuator.

20. (Previously Presented) An electronic device comprising:

a piezoelectric actuator according to claim 9.

21. (Currently Amended) A control program for a drive device for a piezoelectric actuator for supplying a drive signal to [[the]] a piezoelectric element in [[a]] the piezoelectric actuator comprising:

code for supplying a drive signal with a specific frequency to [[a]] the piezoelectric element having contact sections being convexities arranged on opposite sides thereof, one of the contact sections being configured to contact a driven object;

code for oscillating an oscillator due to the supply of the drive signal to the piezoelectric element;

code for detecting the amplitude of a detection signal indicating the oscillating state of the oscillator; and

code for detecting the detection signal;

code for controlling the frequency of the drive signal sent to the piezoelectric element on the basis of the detection signal or the detection signal and the drive signal; and

code for comparing the amplitude and the standard amplitude value and controlling the frequency of the drive signal on the basis of the results of this comparison.

22. (Original) A storage medium capable of being read by a computer that stores the control program according to claim 21.

23. (Previously Presented) The piezoelectric actuator according to claim 13, further comprising

a phase difference detection device detecting a detection signal that indicates the oscillating state of the oscillator and detecting the phase difference between the detection signal and the drive signal or the phase difference between a plurality of detection signals, wherein

the frequency control device compares the phase difference detected by the phase difference detection device with a standard phase difference value and controls the frequency of the drive signal sent to the piezoelectric element on the basis of the results of this

comparison, and also compares the amplitude and the standard amplitude value and controls the frequency of the drive signal on the basis of the results of this comparison.

24. (Previously Presented) An electronic timepiece comprising:

a piezoelectric actuator according to claim 13; and

a date display mechanism driven by the piezoelectric actuator.

25. (Previously Presented) An electronic device comprising:

a piezoelectric actuator according to claim 13.

26. (Currently Amended) A drive method for a piezoelectric actuator comprising:

supplying a drive signal with a specific frequency to a piezoelectric element to oscillate an oscillator of the piezoelectric element by a drive device;

controlling the frequency of the drive signal by a frequency control device of the drive device;

detecting an amplitude of a detection signal by an amplitude detection circuit of the drive device;

controlling the increase or decrease in the frequency of the drive signal by a frequency increase/decrease control device of the frequency control device;

controlling the rate of change of the increase or decrease in the frequency of the drive signal by a frequency increase/decrease rate control device of the frequency control device;

detecting a detection signal indicating the oscillating state of the oscillator and controlling the frequency of the drive signal on the basis of the detection signal and the drive signal, or on the basis of the detection signal by either one of the frequency increase/decrease control device or frequency increase/decrease rate control device; and

comparing the amplitude and [[the]] a standard amplitude value and controlling the frequency of the drive signal on the basis of the results of this comparison by the other one of the frequency increase/decrease control device or frequency increase/decrease rate control device.

27. (Previously Presented) A drive method for a piezoelectric actuator comprising:

supplying a drive signal with a specific frequency to a piezoelectric element to oscillate an oscillator of the piezoelectric element by a drive device;

controlling the frequency of the drive signal by a frequency control device of the drive device;

detecting the amplitude of a detection signal by an amplitude detection circuit of the drive device;

detecting a detection signal indicating the oscillating state of the oscillator and controlling the frequency of the drive signal based on results of comparing the amplitude of the detection signal and a standard amplitude value by the frequency control device;

outputting a standard voltage for phase difference comparison and a standard voltage for amplitude detection by a constant voltage circuit of the frequency control device;

comparing the standard voltage for phase difference comparison outputted by the constant voltage circuit with a phase difference voltage outputted from a phase difference/voltage conversion circuit, and outputting a comparison result signal by a comparison circuit of the frequency control device;

receiving the comparison result signal outputted by the comparison circuit and ~~to control~~ controlling the frequency of the drive signal sent to the piezoelectric element by a drive control section of the frequency control device;

detecting amplitude by comparing the standard voltage for amplitude detection outputted by the constant voltage circuit with the detection signal by the amplitude detection circuit by the amplitude detection circuit; and

decreasing the rate of change in frequency over a specific period of time when the amplitude detection voltage detected by the amplitude detection circuit is equal to or greater than the standard voltage for amplitude detection, and increasing the rate of change in frequency over a specific period of time when the amplitude detection voltage detected by the amplitude detection circuit is less than the standard voltage for amplitude detection by the drive control section.